Cryomodule Assembly Facility (CAF) Setup Status

Tug Arkan

April 5, 2006

Current Procurement Status

- **Cavity String Assembly Rail System:** $85K
  - Installed
- **Cold Mass Assembly Fixture:** $31K
  - Received, currently stored at Warehouse
- **Vacuum Vessel Assembly Fixture:** $105K
  - Received, currently stored at CDF

Total: $221K Spent/Obligated in FY05

Cavity String Assembly Clean Rooms Procurement

- Pre-design meeting was held with the vendor at FNAL on October 7, 06.
- Design was completed by the middle of November 06.
- Two weeks long lab-wide DP-18 design review was completed on December 5, 06.
- Construction was started on January 12:
- 70-80 days construction period:
  - Construction manager: Wayne Bayes, Luwa's superintendent
  - Construction coordinator: Glenn Smith, TD
- Turnover of the clean rooms to Fermilab by the vendor: **April 28, 06**.
- ($957K) Obligated in FY05 + ~$70K change orders in FY06

Pictures taken on March 20, 2006

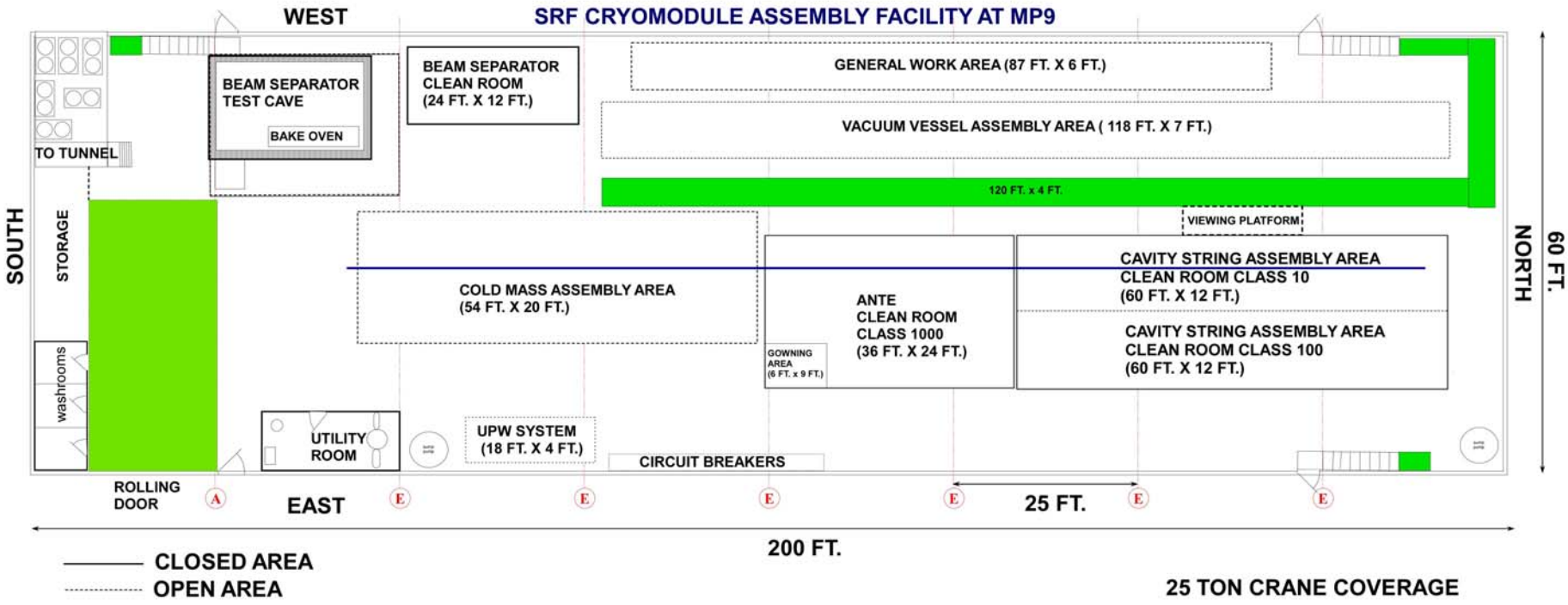
Pictures taken on April5, 2006

Clean Room Construction Status

- Dry wall construction completed
- Ceiling grit completed
- Air Handling piping completed
- Air handing unit, HVAC unit installed
- Raised Floor installation completed
- Air Shower, Doors, Dividing wall installed
- Modular inner walls installation (under progress)

CAF Infrastructure Plans at MP9

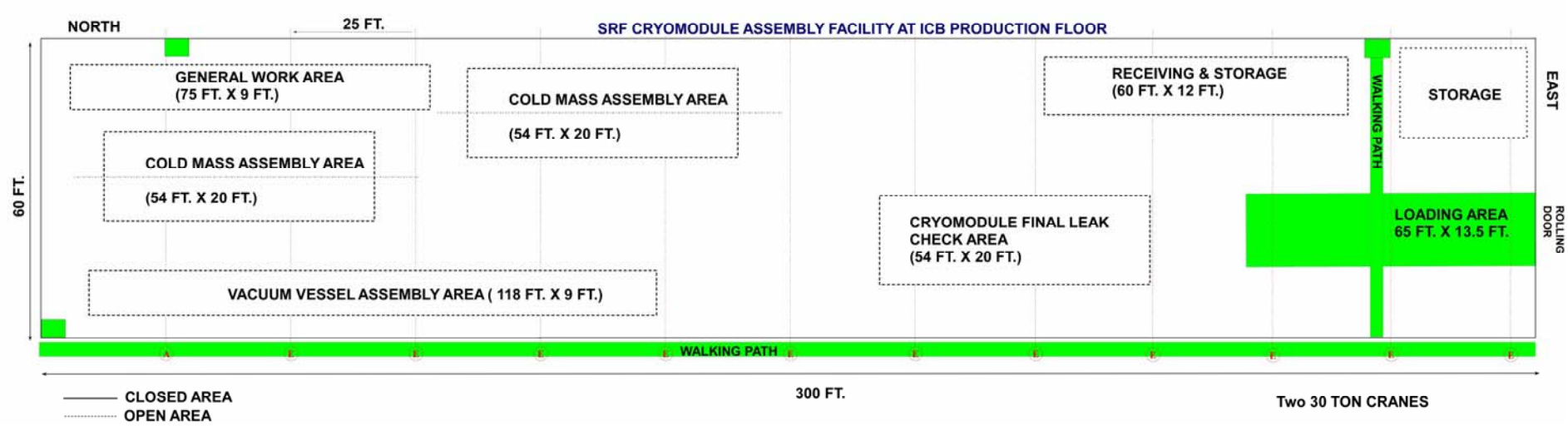
1.3 GHz Elliptical Cryomodules Assembly Facility (CAF) Infrastructure at MP9



Fixtures Installation Plans & Schedule

- Cavity String Assembly Rail was assembled and aligned during the week of March 6th, 06
- Cold Mass Assembly Fixture will be installed in May 06 after the clean rooms construction is completed.
- We are planning to install the Vacuum Vessel Assembly Fixture (Big Bertha) at ICB instead of MP9. The impact of this plan and the risks associated with are currently being assessed.
- Cavity String Assembly Fixtures are being currently designed /Americanized from DESY drawings. We plan to install them in May 06 when the clean rooms are operational.

ICB Usage for Small Scale Mass Production of Cryomodules



FY06 Procurement Plans for CAF

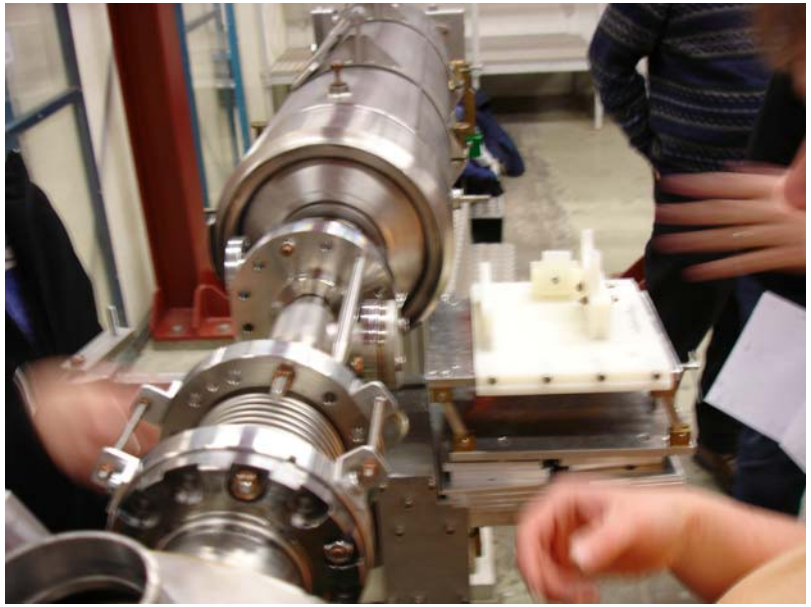
- MP9 Building Floor Epoxy coating ($25K) [completed]
- MP9 Building inside ceiling cleaning ($10K) [completed]
- Construction of the clean rooms: ($80K)
  - T&M work to tie the clean rooms to the MP9 house power ($20K) [completed]
  - Fire sprinkler tie-in ($5K) [completed]
  - Metasys DDC Controls network for the clean rooms ($5K) [completed]

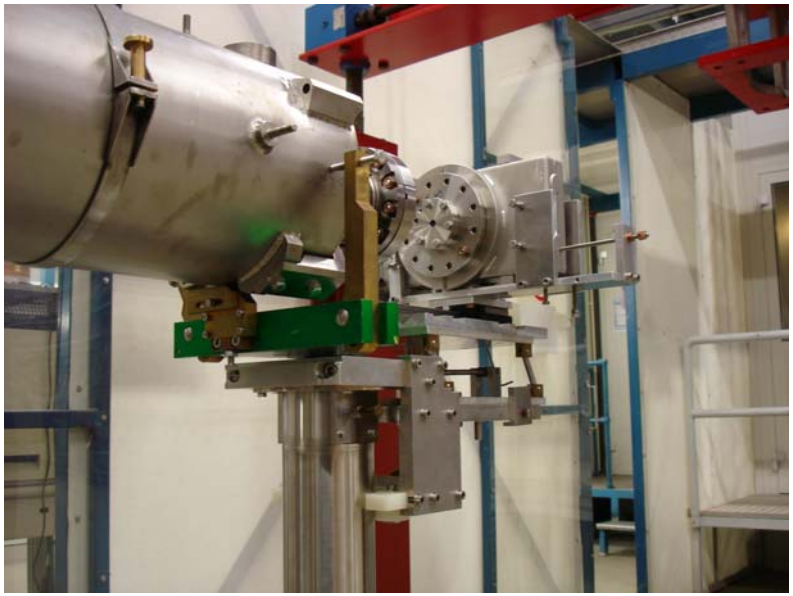
1st Cryomodule Assembly Plans

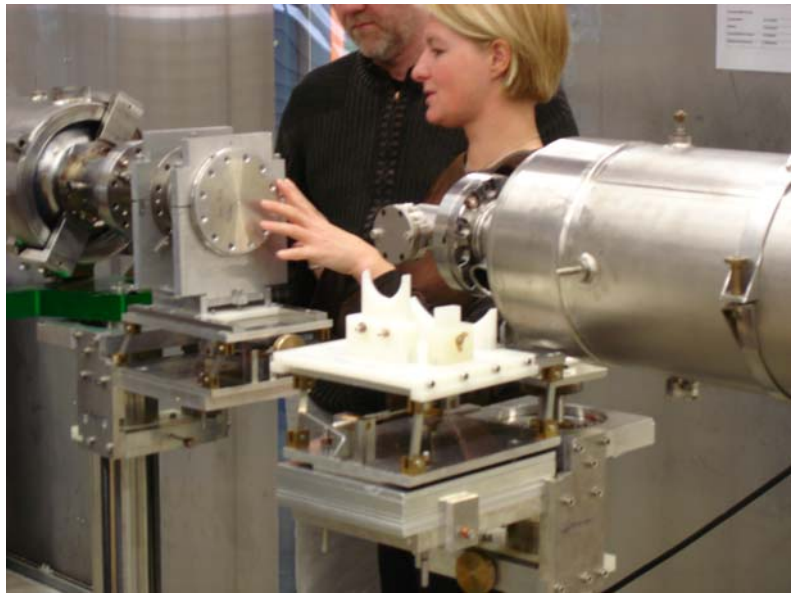
- Cavity String Assembly Procedures & Fixtures Learning at DESY (February 20 –March 3, 06) [Completed]
- CAF Clean Rooms operational: **May 2006**
- Install Cold Mass Assembly Fixture at CAF: **May 2006**
- Cryomodule #6 Assembly Procedures Learning at DESY (**May-June 2006**)
  - Brian Smith, Tug Arkan, Don Mitchell will attend
- CAF Infrastructure ready & operational: **June 2006**
- Install Vacuum Vessel Assembly Fixture (Big Bertha) at ICB (**Summer of 2006**)
- Practice assembly procedures (learned at DESY during Module#6 assembly) with mockups and new installed infrastructure at CAF and ICB (**June – September 2006**)
- Assemble 1st Cryomodule (4 months): Start date depends when we receive the kit from DESY **(~ Fall 2006**)

Summary from DESY visit

- Brian Smith & Tug Arkan visited DESY Hall 3 between February 20 and March 3, 2006 to learn cavity string assembly mechanical procedures with mockup assemblies outside of the clean rooms.
- A draft traveler was written during this visit. It is currently being reviewed by Axel Matheisen for comments.
- Even though, the main purpose of this training was to educate German industries for DESY, FNAL personnel had a chance to get familiar with cavity parts, hardware and assembly techniques.
- Tooling & Fixturing used to assemble the cavity string were identified. We brought back drawings (if available). We made sketches, movies and took a lot of pictures and notes.
- It will be essential to follow up this training with Cryomodule #6 assembly witnessing at DESY in May-June 2006.







Pictures from DESY visit in February 2006